Listing of Claims

The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

1. (currently amended) A solution jet type fabrication apparatus for fabricating a wiring pattern or a device, the solution jet type fabrication apparatus comprising:

a jet head for ejecting a droplet of a solution containing conductive fine particles onto a substrate, so as to form a pattern, by vaporizing a volatile ingredient of the solution, and allowing a solid component to remain on the substrate,

wherein the substrate is made from plastic or polymer film and has no liquid absorbing property,

wherein the substrate has electrodes thereon,

wherein the jet head includes a nozzle from which the droplet is ejected onto said substrate and electrodes to connect each other, the nozzle being formed from a material that has a greater hardness than that of the fine particles in the solution,

wherein the nozzle has a size that is equal to or less than $\Phi 20\mu m$, the nozzle satisfying a relation of $0.0001 \leq Dp/Do \leq 0.01$, where Dp represents the diameter of each of the fine particles and Do represents the diameter of the nozzle,

wherein each of the fine particles has a size that is equal to or less than the roughness of a surface of the substrate.

2. (original) The solution jet type fabrication apparatus as claimed in claim 1, wherein the jet head ejects the droplet using a mechanical displacement force.

3. (original) The solution jet type fabrication apparatus as claimed in claim 2, wherein the jet head ejects the droplet using the mechanical displacement force so that the droplet becomes spherical immediately before the droplet reaches the substrate.

4. (original) The solution jet type fabrication apparatus as claimed in claim 2, wherein the jet head ejects the droplet using the mechanical displacement force so that the droplet has an elongated shape along the ejecting direction without a trailing droplet, and so that the length of the elongated droplet in the ejecting direction is no more than three times the length of the elongated droplet in a direction perpendicular to the ejecting direction.

5. (currently amended) The solution jet type fabrication apparatus as claimed in claim 2, ~~wherein the distance between the substrate and the nozzle is 3 mm or less~~ further comprising:.

a driving unit for moving the jet head and the substrate relatively to the other;

a substrate positioning unit for adjusting and determining the position of the substrate; and

a substrate holder for holding the substrate and keeping the distance between the substrate and the nozzle 3 mm or less while the jet head and the substrate are moving relatively to the other.

6. (currently amended) The solution jet type fabrication apparatus as claimed in claim 2, further comprising:

a ~~driving~~ control unit ~~that moves~~ for moving at least one of the jet head and the substrate relatively to the other so that that velocity of the relative movement of the jet head and the substrate is less than the velocity of the ejected droplet.

Claim 7 (canceled).

8. (original) The solution jet type fabrication apparatus as claimed in claim 1, wherein the jet head ejects the droplet using a growth displacement force of a thermally generated bubble.

9. (currently amended) The solution jet type fabrication apparatus as claimed in claim 8, further comprising:

a driving unit ~~that moves~~ for moving at least one of the jet head and the substrate relatively to the other so that the velocity of the relative movement of the jet head and the substrate is no more than 1/3 of the velocity of the ejected droplet.

Claim 10 (canceled).

11. (original) The solution jet type fabrication apparatus as claimed in claim 8, wherein the jet head ejects the droplet using the growth displacement force of a thermally generated bubble so that the droplet has an elongated shape along the ejecting direction with a trailing

droplet, and so that the length of the elongated droplet in the ejecting direction is no less than five times the length of the elongated droplet in a direction perpendicular to the ejecting direction.

12. (original) The solution jet type fabrication apparatus as claimed in claim 1, wherein the jet head includes a filter situated at an upstream location of the nozzle.

13. (currently amended) The solution jet type fabrication apparatus as claimed in claim 12, wherein the filter is situated at a position nearest to the nozzle for trapping a foreign particle with a size equal to or greater than 30 times the diameter of the fine particle.

Claim 14 (canceled).

15. (withdrawn) A solution used for a solution jet type fabrication apparatus for fabricating a wiring pattern or a device, the solution jet type fabrication apparatus having a jet head for ejecting a droplet onto a substrate, so as to form a pattern, by vaporizing a volatile ingredient of the solution, and allowing a solid component to remain on the substrate, the substrate having no liquid absorbing property, the jet head including a nozzle from which the droplet is ejected, the nozzle having a size that is equal to or less than Φ20 μm, the solution comprising:

fine particles where each of the fine particles has a size that is equal to or less than the roughness of a surface of the substrate, the fine particles satisfying a relation of

$0.0001 \leq Dp/Do \leq 0.01$, where Dp represents the diameter of each of the fine particles and Do represents the diameter of the nozzle, and the fine particles having a hardness less than that of a material of the nozzle.

16. (withdrawn) A substrate used for a solution jet type fabrication apparatus for fabricating a wiring pattern or a device, the solution jet type fabrication apparatus having a jet head for ejecting a droplet of a solution containing fine particles onto a substrate, so as to form a pattern, by vaporizing a volatile ingredient of the solution, and allowing a solid component to remain on the substrate, the jet head including a nozzle from which the droplet is ejected, the nozzle being formed from a material that has a greater hardness than that of the fine particles in the solution, the nozzle having a size that is equal to or less than $\Phi 20$ μm, the nozzle satisfying a relation of $0.0001 \leq Dp/Do \leq 0.01$, where Dp represents the diameter of each of the fine particles and Do represents the diameter of the nozzle, the substrate comprising:

an electrode area on which the wiring pattern is formed,

wherein the substrate has no liquid absorbing property,

wherein the substrate has a surface having a roughness that is equal to or greater than the size of each of the fine particles.

17. (withdrawn) The substrate as claimed in claim 16, wherein the electrode area is formed as a rectangular pattern, wherein a corner of the rectangular pattern is chamfered.

18. (withdrawn) The substrate as claimed in claim 16, wherein the electrode area is

formed as a combination of rectangular patterns, wherein a corner of each of the rectangular patterns is chamfered.

19. (withdrawn) The substrate as claimed in claim 16, wherein the electrode area is formed as a rectangular pattern, wherein a corner of the rectangular pattern is covered with one or more round-shaped dots.

20. (withdrawn) The substrate as claimed in claim 16, wherein the electrode area is formed as a combination of rectangular patterns, wherein a corner of each of the rectangular patterns is covered with one or more round-shaped dots.

21. (withdrawn) The substrate as claimed in claim 16, wherein the electrode area is formed as a pattern of one or more round-shaped dots by ejecting a droplet of a solution containing fine particles onto the substrate, so as to form the pattern, by vaporizing a volatile ingredient of the solution, and allowing a solid component to remain on the substrate.

22. (withdrawn) The substrate as claimed in claim 16, wherein the wiring pattern is a strip-like pattern extending in parallel to two perpendicular directions, the strip-like pattern being formed of a combination of round-shaped dots.

23. (withdrawn) The substrate as claimed in claim 16, wherein the strip-like pattern has a portion that is bent in a right angle, wherein an outer area of the bent portion is formed as a

curve.

24. (withdrawn) A substrate used for a solution jet type fabrication apparatus for fabricating a wiring pattern or a device, the solution jet type fabrication apparatus having a jet head for ejecting a droplet of a solution containing fine particles onto a substrate, so as to form a pattern, by vaporizing a volatile ingredient of the solution, and allowing a solid component to remain on the substrate, the jet head including a nozzle from which the droplet is ejected, the nozzle being formed from a material that has a greater hardness than that of the fine particles in the solution, the nozzle having a size that is equal to or less than Φ20 μm, the nozzle satisfying a relation of $0.0001 \leq Dp/Do \leq 0.01$, where Dp represents the diameter of each of the fine particles and Do represents the diameter of the nozzle, the substrate comprising:

an electrode area on which the device is formed,

wherein the substrate has no liquid absorbing property,

wherein the substrate has a surface having a roughness that is equal to or greater than the size of each of the fine particles.

25. (withdrawn) The substrate as claimed in claim 24, wherein the electrode area is formed as a rectangular pattern, wherein a corner of the rectangular pattern is chamfered.

26. (withdrawn) The substrate as claimed in claim 24, wherein the electrode area is formed as a combination of rectangular patterns, wherein a corner of each of the rectangular patterns is chamfered.

27. (withdrawn) The substrate as claimed in claim 24, wherein the electrode area is formed as a rectangular pattern, wherein a corner of the rectangular pattern is covered with one or more round-shaped dots.

28. (withdrawn) The substrate as claimed in claim 24, wherein the electrode area is formed as a combination of rectangular patterns, wherein a corner of each of the rectangular patterns is covered with one or more round-shaped dots.

29. (withdrawn) The substrate as claimed in claim 24, wherein the electrode area is formed as a pattern of one or more round-shaped dots by ejecting a droplet of a solution containing fine particles onto the substrate, so as to form the pattern, by vaporizing a volatile ingredient of the solution, and allowing a solid component to remain on the substrate.

30. (withdrawn) The substrate as claimed in claim 24, wherein the device is a strip-like pattern extending in parallel to two perpendicular directions, the strip-like pattern being formed of a combination of round-shaped dots.

31. (withdrawn) The substrate as claimed in claim 24, wherein the strip-like pattern has a portion that is bent in a right angle, wherein an outer area of the bent portion is formed as a curve.

32. (withdrawn) A method for fabricating a wiring pattern or a device, the method comprising the steps of:

ejecting a droplet of a solution containing fine particles onto a substrate, by using a jet head;

vaporizing a volatile ingredient of the solution; and

allowing a solid component to remain on the substrate,

wherein the substrate has no liquid absorbing property,

wherein the jet head includes a nozzle from which the droplet is ejected, the nozzle being formed from a material that has a greater hardness than that of the fine particles in the solution,

wherein the nozzle has a size that is equal to or less than $\Phi 20$ μm, the nozzle satisfying a relation of $0.0001 \leq Dp/Do \leq 0.01$, where Dp represents the diameter of each of the fine particles and Do represents the diameter of the nozzle,

wherein each of the fine particles has a size that is equal to or less than the roughness of a surface of the substrate.